

## ABSTRACT OF THE DISCLOSURE

The present invention relates to an apparatus and method for use with a mass spectrometer. The ion enhancement system of the present invention is used to direct a heated gas toward ions produced by a matrix based ion source and detected by a detector. The ion enhancement system is interposed between the ion source and the detector. The analyte ions that contact the heated gas are enhanced and an increased number of ions are more easily detected by a detector. The method of the invention comprises producing analyte ions from a matrix based ion source, enhancing the analyte ions with an ion enhancement system and detecting the enhanced analyte ions with a detector.